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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
08/479,810	06/07/1995	JOHANNES G. BEDNORZ	YO987-074BY	8594

7590 07/28/2004

IBM CORPORATION
INTELLECTUAL PROPERTY LAW
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EXAMINER

KOPEC, MARK T

ART UNIT	PAPER NUMBER
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1751

DATE MAILED: 07/28/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 08/479,810	Applicant(s) BEDNORZ ET AL.	
	Examiner Mark Kopec	Art Unit 1751	
	-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --		

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).

Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on 03 March 2004.

2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) 1-413 is/are pending in the application.

4a) Of the above claim(s) 73-76,82,83,377 and 378 is/are withdrawn from consideration.

5) ☒ Claim(s) See Continuation Sheet is/are allowed.

6) ☒ Claim(s) See Continuation Sheet is/are rejected.

7) ☐ Claim(s) _____ is/are objected to.

8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) ☐ All b) ☐ Some * c) ☐ None of:

1. ☐ Certified copies of the priority documents have been received.

2. ☐ Certified copies of the priority documents have been received in Application No. _____.

3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) <input type="checkbox"/> Notice of References Cited (PTO-892) 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.	4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____. 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) 6) <input type="checkbox"/> Other: _____.
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Continuation of Disposition of Claims: Claims allowed are 113,114,123-125,135-138,140,151,157,167-169,172-174,177-179,185,186,189-191,196,197,213-216,220,221,224-226,231,258-260,264,265,269,270,276,277,280-282,287,288,296-301,304-307,311,312 and 315-317.

Continuation of Disposition of Claims: Claims rejected are 1-72,77-81,84-112,115-122,126-134,139,141-150,152-156,158-166,170,171,175,176,180-184,187,188,192-195,198-212,217-219,222,223,227-230,232-257,261-263,266-268,271-275,278,279,283-286,289-295,303,308-310,313,314,318-376 and 379-413.

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This action is responsive to applicant's Fifth Supplemental Amendment filed 3/11/04. The attachment(s) filed with the Sixth Supplemental Amendment have been entered. Claims 1-413 are currently pending.

Claims 73-76, 82-83 and 377-378 are withdrawn from consideration as being drawn to a non-elected invention (process).

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

The prior art rejection over Asahi Shinbum, International Satellite Edition (London), November 28, 1986 (hereinafter, "the Asahi Shinbum article") is withdrawn in view of applicant's remarks.

Applicant has sufficiently demonstrated conception, diligence and reduction to practice of the instant invention before the publication date of the Asahi Shinbum article. Applicants have shown that conception of their invention was in the United States at their direction prior to the publication date of the reference. As explicitly stated in *Wilson v. Sherts*, 81 F2d 755, 28 USPQ 379 (CCPA 1936), in the case of conception and reduction to practice, it is well settled that the conception must take place in the United States, or in lieu thereof, it must have been brought to this country or *must have*

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been communicated to someone in this country. Applicants have showed such.

Accordingly, the issue of the instant claims being supported by the priority document is believed moot in view of the withdrawal of the prior art rejections.

Claims 322-360 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Specifically, the examiner fails to find support for the claim terminology "...can be made in bulk according to a principle comprising a general principle of ceramic science". The specification makes no specific mention of "bulk", nor is there any description of "general principle". The examiner suggests changing the terminology to "...wherein said compositions can be made according to known principles of ceramic fabrication". See specification, pages 8 and 15.

Claims 211, 256, 302 and 394 are objected to because of the following informalities: in part (a), applicant should clarify the claim language to clearly require both a (Group IIA element

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or rare earth element) **and** a Group IIIB element must be present (if such is the case). Appropriate correction is required.

Claims 1-5, 7-11, 17, 19, 23, 28, 52-54, 59, 65, 72, 77-81, 86, 87, 94, 96-108, 144, 145, 149, 150, 152-156, 158-161, 165, 166, 170, 171, 175, 176, 180, 181, 235, 236, 240, 241-252, 257, 261, 262, 266, 267, 271, 272 and 361-413 are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The terms "layer-type", "perovskite-like", "rare-earth-like" and "near-rare earth" (claim 65) are vague and confusing. See MPEP 2173.05. The question arises: What is meant by these terms? The terms "layer-type" and "perovskite-like" are unclear because the "type" or "like" terms are deemed to be indefinite. Terms such as "like", "similar", and "type" are indefinite.¹ Additionally, the newly added claims terminology "comprising a rare-earth characteristic", "comprising a layer characteristic" and "comprising a perovskite characteristic" are considered indefinite. The terms are considered identical in scope to the

¹See Ex parte Remark, 15 USPQ 2d 1498, 1500 (BPAI 1990); Ex parte Kristensen, 10 USPQ 2d 1701, 1703 (BPAI 1989); Ex parte Attig, 7 USPQ 2d 1092, 1093 (BPAI 1988); and Ex parte Copenhaver, 109 USPQ 118 (POBA 1955).

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previously rejected terminology and are indefinite for the same reasons.

In claim 263, line 6, the terminology "said copper oxide" has no antecedent basis.

The applicants argue that the terms "rare-earth like", "perovskite-like", and "perovskite-type" are definite. Those arguments are not found to be persuasive.

Each patent application is considered on its own merits. In some contexts it may have been clear in the art to use the term "like", such as when the "like" term is sufficiently defined. In the present case, however, the terms "rare-earth like" and "perovskite-like" are unclear. As suggested above, "rare-earth like" should be changed to --rare earth or Group IIIB element--. The terms "like" or "type" also should be removed from "perovskite-like" or "perovskite-type".

Claims 1-64, 66-72, 84, 85, 88-96, 100-102, 109-112, 115-122, 126-134, 139, 141-143, 146-149, 153-155, 162-166, 182-184, 187, 188, 192-195, 198-212, 217-219, 222, 223, 227-230, 232-234, 237-240, 244-246, 253-257, 268, 273-275, 278, 279, 283-286, 289-295, 302, 303, 308-310, 313, 314, 318-329, 331-334, 337-345, 347-357, 359-374, 376, 379, 380, 382, 383, 389, 394, 395, 402, 407 and 408 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for compositions

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comprising a transition metal oxide containing at least a) an alkaline earth element or Group IIA element and b) a rare-earth element or Group IIIB element, does not reasonably provide enablement for the invention as claimed. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make the invention commensurate in scope with these claims.

The present specification is deemed to be enabled only for compositions comprising a transition metal oxide containing at least a) an alkaline earth element and b) a rare-earth element or Group IIIB element. The art of high temperature (above 30°K) superconductors is an extremely unpredictable one. Small changes in composition can result in dramatic changes in or loss of superconducting properties. The amount and type of examples necessary to support broad claims increases as the predictability of the art decreases.² Claims broad enough to cover a large number of compositions that do not exhibit the desired properties fail to satisfy the requirements of 35 U.S.C. 112.³ Merely reciting a desired result does not overcome this

²See In re Fisher, 166 USPQ 18, 24; and In re Angstadt and Griffen, 190 USPQ 214, 218. See also, In re Colianni, 195 USPQ 150, 153, 154 (CCPA 1977) (J. Rich).

³See In re Cook, 169 USPQ 298, 302; and Cosden Oil v. American Hoechst, 214 USPQ 244, 262.

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failure.⁴ In particular, the question arises: Will any layered perovskite material exhibit superconductivity?

It should be noted that at the time the invention was made, the theoretical mechanism of superconductivity in these materials was not well understood. That mechanism still is not understood. Accordingly, there appears to be little factual or theoretical basis for extending the scope of the claims much beyond the proportions and materials actually demonstrated to exhibit high temperature superconductivity. A "patent is not a hunting license. It is not a reward for the search, but a reward for its successful conclusion".⁵

Upon careful consideration of the evidence as a whole, including the specification teachings and examples, and applicants affidavits and remarks, the examiner has determined that the instant specification is enabled for compositions comprising a transition metal oxide containing an alkaline earth element and a rare-earth or Group IIIB element (as opposed to only compositions comprising $\text{Ba}_x\text{La}_{5-x}\text{Cu}_5\text{O}_y$. as stated in the Final Office action). Applicant has provided guidance throughout the instant specification that various transition

⁴See In re Corkill, 226 USPQ 105, 1009.

⁵See Brenner v. Manson, 383 US 519, 148 USPQ 689.

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metal oxides (such as copper oxide) containing an alkaline earth element and a rare-earth or Group IIIB element result in superconductive compounds which may in turn be utilized in the instantly claimed apparatus.

Applicant's remarks have been carefully considered. The following remarks are believed to address each of the issues raised by applicant.

Applicants' arguments, as well as the Affidavits filed 5/1/98, 5/14/98, 12/16/98 and 3/3/04 (1.132 Declarations of Mitzi, Tsuei, Dinger and Shaw) (Advisory mailed 2/25/99 (Paper 77E)) have been fully considered but they are not deemed to be persuasive.

The additional case law and arguments by the applicants have been duly noted. For the reasons that follow, however, the record as a whole is deemed to support the initial determination that the originally filed disclosure would not have enabled one skilled in the art to make and use the invention to the scope that it is presently claimed.

Applicants argue that their disclosure refers to "the composition represented by the formula RE-TM-O, where RE is a rare earth or rare earth-like element, TM is a nonmagnetic transition metal, and O is oxygen", and list several species

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such as $\text{La}_{2-x}\text{Ba}_x\text{CuO}_{4-y}$ which they indicate are found in the present disclosure.

Notwithstanding that argument, it still does not follow that the invention is fully enabled for the **scope** presently claimed. The claims include formulae which are much broader than the RE-TM-O formula cited in the disclosure. Claim 24 recites "a transition metal oxide", claim 88 "a composition", and claim 96 "a copper-oxide compound".

The present specification actually shows that known forms of "a transition metal oxide", "a composition", and "a copper-oxide compound" do **not** show the onset of superconductivity at above 26°K. At p. 3, line 20, through p. 4, line 9, of their disclosure, the applicants state that the prior art includes a "Li-Ti-O system with superconducting onsets as high as 13.7°K." Official Notice is taken of the well-known fact that Ti is a transition metal. That disclosure also refers to "a second, non-conducting CuO phase" at p. 14, line 18.

Accordingly, the present disclosure is not deemed to have been fully enabling with respect to the "transition metal oxide" of claim 24, the "composition" of claim 88, or the "copper-oxide compound" of claim 96.

The availability requirement of enablement must also be considered in light of the scope or breadth of the claim limitations. The Board of Appeals considered this issue in an application which claimed a fermentative method using microorganisms belonging to a species. Applicants had identified three novel individual strains of microorganisms that were related in such a way as to establish a new species of microorganism, a species being a broader classification than a strain. The three specific strains had been appropriately deposited. The issue focused on whether the specification enabled one skilled in the art to make any member of the species other than the three strains which had been deposited. The Board concluded that the verbal description of the species was inadequate to allow a skilled artisan to make any and all members of the claimed species. *Ex parte Jackson*, 217 USPQ 804, 806 (Bd. App. 1982).

In *Enzo Biochem, Inc. v. Calgene, Inc.*, 188 F.3d 1362, 52 USPQ2d 1129 (Fed. Cir. 1999), the court held that claims in two patents directed to genetic antisense technology (which aims to control gene expression in a particular organism), were invalid because the breadth of enablement was not commensurate in scope with the claims. Both specifications disclosed applying antisense technology in regulating three genes in *E. coli*.

Despite the limited disclosures, the specifications asserted that the "[t]he practices of this invention are generally applicable with respect to any organism containing genetic material which is capable of being expressed ... such as bacteria, yeast, and other cellular organisms." The claims of the patents encompassed application of antisense methodology in a broad range of organisms. Ultimately, the court relied on the fact that (1) the amount of direction presented and the number of working examples provided in the specification were very narrow compared to the wide breadth of the claims at issue, (2) antisense gene technology was highly unpredictable, and (3) the amount of experimentation required to adapt the practice of creating antisense DNA from *E. coli* to other types of cells was quite high, especially in light of the record, which included notable examples of the inventor's own failures to control the expression of other genes in *E. coli* and other types of cells.

The examples at p. 18, lines 1-20, of the present specification further substantiates the finding that the invention is not fully enabled for the scope presently claimed.

With a 1:1 ratio of (Ba, La) to Cu and an x value of 0.02, the La-Ba-Cu-O form (i.e., "RE-AE-TM-O", per p. 8, line 11) shows "no superconductivity". With a 2:1 ratio of (Ba, La) to Cu and an x value of 0.15, the La-Ba-Cu-O form shows an onset of

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superconductivity at " $T_c = 26^\circ\text{K}$ ". It should be noted, however, that **all** of the claims in this application require the critical temperature (T_c) to be "in excess of 26°K " or "greater than 26°K ".

The state of the prior art provides evidence for the degree of predictability in the art and is related to the amount of direction or guidance needed in the specification as filed to meet the enablement requirement. The state of the prior art is also related to the need for working examples in the specification. The state of the art for a given technology is not static in time. It is entirely possible that a disclosure filed on January 2, 1990, would not have been enabled. However, if the same disclosure had been filed on January 2, 1996, it might have enabled the claims. Therefore, the state of the prior art must be evaluated for each application based on its filing date. 35 U.S.C. 112 requires the specification to be enabling only to a person "skilled in the art to which it pertains, or with which it is most nearly connected."

The applicants also have submitted three affidavits attesting to the applicants' status as the discoverers of materials that superconduct $> 26^\circ\text{K}$. Each of the affidavits further states that "all the high temperature superconductors

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which have been developed based on the work of Bednorz and Muller behave in a similar manner (way)". Each of the affidavits add "(t)hat once a person of skill in the art knows of a specific transition metal oxide composition which is superconducting above 26°K, such a person of skill in the art, using the techniques described in the (present) application, which includes all known principles of ceramic fabrication, can make the transition metal oxide compositions encompassed by (the present) claims ...without undue experimentation or without requiring ingenuity beyond that expected of a person of skill in the art." All three affiants apparently are the employees of the assignee of the present application.

Those affidavits do not set forth particular facts to support the conclusions that all superconductors based on the applicants' work behave in the same way and that one skilled in the art can make those superconductors without undue experimentation. Conclusory statements in an affidavit or specification do not provide the factual evidence needed for patentability.⁶

⁶See In re Lindner, 173 USPQ 356, 358 (CCPA 1972).

Those affidavits do not overcome the non-enablement rejection. The present specification discloses *on its face* that only certain oxide compositions of rare earth, alkaline earth, and transition metals made according to certain steps will superconduct at $> 26^{\circ}\text{K}$.

Those affidavits are not deemed to shed light on the state of the art and enablement *at the time* the invention was made. One may **know now of a material** that superconducts at more than 26°K , but the affidavits do not establish the existence of that knowledge on the filing date for the present application. Even if the present application "includes all known principles of ceramic fabrication", those affidavits do not establish the level of skill in the ceramic art as of the filing date of that application.

It is fully understood that the applicants are the pioneers in high temperature metal oxide superconductivity. The finding remains, nonetheless, that the disclosure is not fully enabling for the scope of the present claims.

The applicants quote a statement from part of the previous Office Action and asserts that the "Examiner does not support this statement with any case law citations." That assertion is

incorrect. Seven decisions have been cited as providing the legal basis for this determination of non-enablement.⁷

The applicants argue that their own examples do not support the determination of non-enabling scope of the invention. Nevertheless, the record is viewed as a whole. If the applicants could not show superconductivity with a $T_c > 26^\circ\text{K}$ for certain compositions falling within the scope of the present claims, it is unclear how someone else skilled in the art would have been enabled to do so at the time the invention was made.

The applicants assert that "(b)y the Examiner's statement that these (statements in the affidavits) are conclusionary (sic) the Examiner appears to be placing himself up as an expert in the field of superconductivity" and "respectfully request that the Examiner submit an affidavit in the present application rebutting the position taken by applicants' 3 affiants." Notwithstanding those assertions, this Examiner has determined that those affidavits were insufficient because they were conclusory only, i.e., they lacked particular facts to support the conclusions reached.

⁷See footnotes 1-4 in the April 15, 1996 Office Action, paper no. 54. See also, the corresponding sections of this Office Action.

The applicants argue that the "Examiner has provided no substantial evidence to support this assertion (of non-enabling scope of the invention). It is respectfully requested that the Examiner support (his) assertion with factual evidence and not unsupported statements." Nevertheless, the determination of non-enabling scope is maintained for the reasons of record.

The applicants argue that the "standard of enablement for an apparatus is not the same as the standard of enablement for a composition of matter" and that their claimed invention is enabling because it is directed to a method of use rather than a composition. Basis is not seen for that argument, to the extent that it is understood. It is noted that 35 U.S.C. 112, first paragraph, reads as follows:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same, and shall set forth the best mode contemplated by the inventor of carrying out his invention. Apparatus claims also would be subject to the statutory provisions of 35 U.S.C. 112, first paragraph.

The applicants assert that the "Examiner has not shown by evidence not contained within applicants' teaching that the art of high T_c superconductors is unpredictable in view of applicants' teaching" (spelling and punctuation errors corrected). To the extent that the same assertion is understood, the rejection is maintained for the reasons of record.

The applicants point to "Copper Oxide Superconductors" by Charles P. Poole, Jr., et al., (hereinafter, "the Poole article") as supporting their position that higher temperature superconductors were not that difficult to make after their original discovery.

Initially, however, it should be noted that the Poole article was published *after* the priority date presently claimed. As such, it does not provide evidence of the state of the art *at the time* the presently claimed invention was made.

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Finally, the Preface states in part at A3: "The unprecedented worldwide effort in superconductivity research that has taken place over the past two years has produced an enormous amount of experimental data on the properties of the copper oxide type materials that exhibit superconductivity above the temperature of liquid nitrogen. ... During this period a consistent experimental description of many of the properties of the principal superconducting compounds such as BiSrCaCuO, LaSrCuO, TlBaCaCuO, and YBaCuO has emerged. ... The field of high-temperature superconductivity is still evolving ..." That preface is deemed to show that the field of high-temperature superconductivity continued to grow, on the basis of on-going basic research, after the Bednorz and Mueller article was published.

The applicants submitted three affidavits, one each from Drs. Tsuei, Dinger, and Mitzi which were signed in May of 1998. Except for one change, those three affidavits are the same as the ones submitted before and discussed above.

Those affidavits have been changed to indicate that the present application "includes all known principles of ceramic fabrication known at the time the application was filed." However, that additional indication also is considered to be a conclusory statement unsupported by particular evidence.

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Applicants have submitted three affidavits attesting to the applicants' status as the discoverers of materials that superconduct $> 26^{\circ}\text{K}$. Each of the affidavits states that "all the high temperature superconductors which have been developed based on the work of Bednorz and Muller behave in a similar manner (way)". Each of the affidavits add "(t)hat once a person of skill in the art knows of a specific transition metal oxide composition which is superconducting above 26°K , such a person of skill in the art, using the techniques described in the (present) application, which includes all known principles of ceramic fabrication, can make the transition metal oxide compositions encompassed by (the present) claims ...without undue experimentation or without requiring ingenuity beyond that expected of a person of skill in the art.

It is the examiner's maintained position that while general principles of ceramic fabrication were most certainly known prior to the filing date of the instant application, the utilization of such techniques to produce superconductive materials within the scope of the instant claims were not known. The affidavits are not effective to demonstrate enablement at the time the invention was made. As stated in paper #66, page 8, one may now know of a material that superconducts at more than 26K, but the affidavits do not establish the existence of that knowledge on the filing date of the present application.

A key issue that can arise when determining whether the specification is enabling is whether the starting materials or apparatus necessary to make the invention are available. In the biotechnical area, this is often true when the product or process requires a particular strain of microorganism and when the microorganism is available only after extensive screening. The Court in *In re Ghiron*, 442 F.2d 985, 991, 169 USPQ 723, 727 (CCPA 1971), made clear that if the practice of a method requires a particular apparatus, the application must provide a sufficient disclosure of the apparatus if the apparatus is not readily available. The same can be said if certain chemicals are required to make a compound or practice a chemical process. In *re Howarth*, 654 F.2d 103, 105, 210 USPQ 689, 691 (CCPA

1981).

The examiner respectfully maintains, for the reasons of record, that the disclosure is not fully enabling for the scope of the present claims.

In view of the foregoing, the above claims have failed to patentably distinguish over the applied art.

Claims 113, 114, 123-125, 135-138, 140, 151, 157, 167-169, 172-174, 177-179, 185, 186, 189-191, 196, 197, 213-216, 220, 221, 224-226, 231, 258-260, 264, 265, 269, 270, 276, 277, 280-282, 287, 288, 296-301, 304-307, 311, 312, and 315-317 are allowed.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mark Kopec whose telephone number is (571) 272-1319. The examiner can normally be reached on Monday - Friday from 9:30 AM to 6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dr. Yogendra Gupta can be reached on (571) 272-1316. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Mark Kopec
Primary Examiner
Art Unit 1751

MK

July 26, 2004